

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-4 (Canceled).

Claim 5 (Currently Amended): [[The]] A direct current motor, ~~according to claim 1,~~
~~further~~ comprising:

a rotor including a rotation shaft and rotor coils;

a stator configured to apply a magnetic field to the rotor via magnetic poles of the
stator opposing magnetic poles of the rotor;

a flat disc-shaped electrical parts mounting base board fixed on the rotation shaft such
that the rotation shaft perpendicularly intersects the electrical parts mounting base board and
such that a first flat surface of the electrical parts mounting base board faces the rotor, the flat
disc-shaped electrical parts mounting base board including a layer of a conductive material
into which a plane conductive pattern is formed and including a commutator section
including a contact electrode part formed with the plane conductive layer pattern and
connected to the rotor coils, the contact electrode part and the plane conductive layer pattern
being directly formed on a second flat surface of the electrical parts mounting base board;

a pair of electrode brushes in sliding contact with the contact electrode part of the
commutator section and configured to supply electric power to the rotor coils through the
commutator section;

a support base configured to support the rotation shaft of the rotor;

wherein the electrode brushes include respective external terminals configured
to provide an external connection to the direct current motor, and

wherein the electrode brushes and the external terminals of the electrode
brushes are fixed on the support base and the external terminals of the electrode buses
protrude outward from an outside surface of the support base; and
further comprising at least one rotation detecting brush being arcuately curved
outward from the rotation shaft and in sliding contact with the contact electrode part of the
commutator section and configured to detect a signal on the commutator section indicative of
an operation of the direct current motor.

Claim 6 (Previously Presented): The direct current motor according to claim 5,
wherein the at least one rotation detecting brush includes a respective external
terminal configured to provide an external connection to the direct current motor, and
wherein the respective external terminal of the at least one rotation detecting brush is
fixed on the support base and also protrudes outward from the outside surface of the support
base.

Claim 7 (Previously Presented): The direct current motor according to claim 5,
wherein the electrode brushes are configured to contact the commutator section at
representative first and second rotation angle positions 180° apart on the commutator section,
and wherein the at least one rotation detecting brush is configured to contact the commutator
section at a third rotation angle position such that an angle formed between the at least one
rotation detecting brush and one of the electrode brushes is less than $180^\circ/n$, where n is the
number of rotor magnetic poles and n is a natural number of 3 or greater.

Claim 8 (Original): The direct current motor according to claim 5, further
comprising:

a noise suppressing element provided on the electrical parts mounting base board and configured to suppress noise produced in the direct current motor.

Claim 9 (Previously Presented): The direct current motor according to claim 5, wherein respective electrode brushes are split into plural separate portions, and wherein sliding contacts of the separate portions with the contact electrode part of the commutator section cause a phase difference due to a shift of rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part.

Claims 10-14 (Canceled).

Claim 15 (Currently Amended): [[The]] A direct current motor, ~~according to claim 12, further~~ comprising:

a rotor including a rotation shaft and rotor coils;
means for applying a magnetic field to the rotor;
a flat disc-shaped electrical parts mounting base board fixed on the rotation shaft such that the rotation shaft perpendicularly intersects to the electrical parts mounting base board and such that a first flat surface of the electrical parts mounting base board faces the rotor, the flat disc-shaped electrical parts mounting base board including a layer of a conductive material into which a plane conductive pattern is formed and including a commutator section including a contact electrode part formed with the plane conductive layer pattern and connected to the rotor coils, the contact electrode part and the plane conductive layer pattern being directly formed on a second flat surface of the electrical parts mounting base board;

means for supplying electric power to the rotor coils through the commutator section,
the supplying means being in sliding contact with the contact electrode part of the
commutator section;

means for supporting the rotation shaft of the rotor;

a first means for connecting externally to the supplying means;

wherein the supplying means and the first connecting means are fixed on the
supporting means, and the first connecting means externally protrudes outward from
an outside surface of the supporting means; and
further comprising means for detecting a signal on the commutator section indicative
of an operation of the direct current motor, the detecting means being arcuately curved
outward from the rotation shaft and being in sliding contact with the contact electrode part of
the commutator section.

Claim 16 (Previously Presented): The direct current motor according to claim 15,
further comprising:

a second means for connecting externally to the detecting means,
wherein the second connecting means are fixed on the supporting means, and the
second connecting means also protrudes outward from the outside surface of the supporting
means.

Claim 17 (Original): The direct current motor according to claim 15, further
comprising:

means for suppressing noise produced in the direct current motor,
wherein the suppressing means is provided on the electrical parts mounting base
board.

Claims 18-26 (Canceled).

Claim 27 (Currently Amended): [[The]] An apparatus according to claim 26, further comprising:

a rotor including a rotation shaft and rotor coils;

a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator opposing magnetic poles of the rotor;

a flat-disc-shaped electrical parts mounting base board fixed on the rotation shaft such that the rotation shaft perpendicularly intersects the electrical parts mounting base board and such that a first flat surface of the electrical parts mounting base board faces the rotor, the flat disc-shaped electrical parts mounting base board including a layer of a conductive material into which a plane conductive pattern is formed and including a commutator section including a contact electrode part formed with the plane conductive layer pattern and connected to the rotor coils, the contact electrode part and the plane conductive layer pattern being directly formed on a second flat surface of the electrical parts mounting base board;

a pair of electrode brushes in sliding contact with the contact electrode part of the commutator section and configured to supply electric power to the rotor coils through the commutator section;

a support base configured to support the rotation shaft of the rotor;

wherein the electrode brushes include respective external terminals configured to provide an external connection to the direct current motor, and

wherein the electrode brushes and the external terminals of the electrode buses are fixed on the support base and the external terminals of the electrode buses protrude outward from an outside surface of the support base; and

further comprising at least one rotation detecting brush being accurately curved outward from the rotation shaft and in sliding contact with the contact electrode part of the commutator section and configured to detect a signal on the commutator indicative of an operation of the direct current motor.

Claim 28 (Canceled).

Claim 29 (Currently Amended): [[The]] An apparatus according to claim 28, further having a direct current motor, comprising:

a rotor including a rotation shaft and rotor coils;

a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator opposing magnetic poles of the rotor;

an electrical parts mounting base board fixed on the rotation shaft such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, the electrical parts mounting base board including a layer of a conductive material into which a plane conductive pattern is formed and including a commutator section including a contact electrode part formed with the plane conductive layer pattern and connected to the rotor coils, the contact electrode part and the plane conductive layer pattern being directly formed on the electrical parts mounting base board;

a pair of electrode brushes, each pair of electrode brushes including first and second separate portions that are in sliding contact with the contact electrode part of the commutator section at respective sliding contact positions of a different distance from an axis of the rotation shaft, and configured to supply electric power to the rotor coils through the commutator section;

a support base configured to support the rotation shaft of the rotor;

wherein the electrode brushes include respective external terminals configured to provide an external connection to the direct current motor,

wherein the electrode brushes and the external terminals of the electrode

brushes are fixed on the support base and the external terminals of the electrode buses

protrude outward from an outside surface of the support base, and

wherein the respective sliding contact positions of the electrode brushes with

the contact electrode part are shifted in the radial direction; and

further comprising at least one rotation detecting brush being arcuately curved

outward from the rotation shaft and in sliding contact with the contact electrode part of the commutator section at at least one sliding contact position and configured to detect a signal on the commutator section indicative of an operation of the direct current motor,

wherein the respective sliding contact positions of the electrode brushes and the at least one sliding contact position of the at least one rotation detecting brush are arranged at a different distance from the axis of the rotation shaft, and are shifted from each other in the radial direction.